

**TRANSPORTATION CONCEPT REPORT
STATE ROUTE 905**

11-SD-905 P.M. S.D. 0.0 - 12.0

SEPTEMBER, 1994

**State of California
Department of Transportation
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TRANSPORTATION CONCEPT SUMMARY
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TRANSPORTATION CONCEPT (2015)

The components of the 2015 Transportation Concept include State highway, arterial street, and transit service improvements. The State highway component is listed in Table S-1, while the others are discussed below and in the Concept Rationale section. The State highway component examines the route in segments for traffic analysis and other purposes. This component is comprised of the facility type and the number of lanes for 2015, the Average Daily Traffic (ADT) for 2015, the peak hour Volume to Capacity (V/C) Ratio for 2015, the peak hour Operating Level of Service (LOS) for 2015, the Transportation Concept LOS for 2015, and whether the segment is currently in the rural or urban area. The 2015 traffic projections for State Route 905 (SR-905) are based on Caltrans' traffic projections and the San Diego Association of Governments' (SANDAG) Series 8 regional population and employment forecasts and assume completion of the future regional transportation system.

The 2015 peak hour Operating LOS includes all proposed State highway and transit improvements. It also includes expansion and greater utilization of the existing arterial street network. Even with the inclusion of the proposed highway, arterial, and transit improvements, and an increase in person-trips, the 2015 Operating LOS for Segment 2 is deficient.

The 2015 Transportation Concept is based on the SANDAG Congestion Management Program (CMP). Although Segments 4, 5, 6 and 7 are currently in the rural area, it is expected that they will become urban in the future. Accordingly, the CMP minimum standard of LOS 'E' is the 2015 Transportation Concept LOS for all of SR-905. Except for Segment 2, the 2015 Operating LOS is equal to or better than the minimum CMP standard. In order to maintain that relationship, additional improvements such as the implementation of Transportation Control Measure (TCM) , Transportation System Management (TSM), and Transportation Demand Management (TDM) strategies will be needed.

**TABLE S-1
2015 TRANSPORTATION CONCEPT**

Segment/ County Post Mile	Location	No. Lanes/ Facility Type	ADT	Peak hourV /C Ratio	Peak Hour Operating LOS*	Concept LOS**	Rural/ Urban
1 SD 0.0 - 2.8	International Boundary to west of I-5	Unadopted/Unconstructed/Needs Further Study					
2 SD 2.8 - 5.2	West of I-5 to I-805	4F+Aux	80,000	1.03	F0	E	U
3 SD 5.2 - 7.6	I-805 to Heritage Road	6F	87,000	.81	D	E	U
4 SD 7.6 - 8.7	Heritage Road to Britannia Boulevard	6F	94,000	.87	D	E	R
5 SD 8.7 - 9.7	Britannia Boulevard to La Media Road	6F	95,000	.91	D	E	R
6 SD 9.7 -10.6	La Media Road to Future SR-125	6F	88,000	.85	D	E	R
7 SD 10.6 -12.0	Future SR-125 to International Boundary	6F	66,000	.69	C	E	R

4F = Four lane freeway

6F = Six lane freeway

ADT = Average Daily Traffic

AUX = Includes auxiliary lane

CMP = Congestion Management Plan

LOS = Level of Service

R = Rural

SANDAG = San Diego Association of Governments

U = Urban

V/C = Volume to Capacity

* Peak Hour Operating LOS includes the provision of State highway, arterial, and transit improvements.

** Concept LOS is based on the SANDAG CMP minimum LOS standard.

ULTIMATE TRANSPORTATION CORRIDOR

The Ultimate Transportation Corridor (UTC) describes the long term (beyond the 20 year planning period) right of way requirements for a particular segment. The long term needs are determined by Advanced Transportation System Development (ATSD) activities which include investigation and analysis of Community Plans, General Plans, Transportation Plans, Land Use Plans, Environmental Documents, and other planning documents. The intent is to take advantage of or develop opportunities for long term right of way acquisition and to work with local and regional agencies to implement corridor preservation measures.

For freeways, the UTC describes the facility type, the number of lanes, or the transit alternative that may be needed to accommodate traffic growth beyond the year 2015. The UTC for Segment 1 is undetermined. The UTC for Segment 2 is to maintain the existing facility and study the addition of Light Rail Transit (LRT) and two High Occupancy Vehicle (HOV) lanes, based on the results of Metropolitan Transit Development Board's (MTDB) South Bay Public Transportation Plan, discussed in the Concept Rationale section. The UTC for Segments 3 through 7 calls for six or eight mixed flow lanes, depending on the proposed LRT alignment, and two HOV lanes. Right of way equivalent to a 10 lane freeway is currently being reserved by the City of San Diego and the property owners adjacent to the SR-905 adopted alignment. Right of way protection for this portion of SR-905 is essential for future facility expansion.

The UTC is shown in Table S-2 and is based on Caltrans planning studies and the City of San Diego General Plan Circulation Element.

**TABLE S-2
ULTIMATE TRANSPORTATION CORRIDOR**

Segment/ County Post-Mile	Location	No. Lanes/ Facility Type
1 SD 0.0 - 2.8	International Boundary to west of I-5	Unadopted/Needs Further Study
2 SD 2.8 - 5.2	West of I-5 to I-805	4F+AUX(Study LRT+2HOV)
3 SD 5.2 - 7.6	I-805 to Heritage Road	8F+2HOV*
4 SD 7.6 - 8.7	Heritage Road to Britannia Boulevard	8F+2HOV*
5 SD 8.7 - 9.7	Britannia Boulevard to La Media Road	8F+2HOV*
6 SD 9.7 -10.6	La Media Road to Future SR-125	8F+2HOV*
7 SD 10.6 -12.0	Future SR-125 to International Boundary	8F+2HOV*

4F = Four lane freeway

6F = Six lane freeway

8F = Eight lane freeway

2HOV = Two High Occupancy Vehicle lanes

AUX = Auxiliary lanes

LRT = Light Rail Transit

MTDB = Metropolitan Transit Development Board

* If the MTDB South Bay Public Transportation Plan determines that the San Diego Trolley should use the SR-905 right of way then the ultimate facility for Segments 3 - 7 will be 6F+2HOV+LRT. Consideration should also be given to the development of a Major Investment Study (MIS) analysis done by Caltrans in cooperation with MTDB and SANDAG.

CONCEPT RATIONALE

An intermodal approach is necessary in order to provide for the projected increased person trips in the SR-905 corridor. The 2015 Transportation Concept is described below on a modal component basis.

The highway component of the 2015 Transportation Concept for SR-905 is described by segment as follows. The 2015 Transportation Concept for Segment 1 has not been determined and is recommended for further study. The 2015 Transportation Concept for Segment 2 is a four lane freeway with auxiliary lanes. This segment has already been constructed as a four-lane access controlled freeway with auxiliary lanes. The 2015 Transportation Concept for Segment 3 is a six lane freeway. A portion of this segment has already been constructed as a four lane freeway with auxiliary lanes. The 2015 Transportation Concept for Segments 4, 5 and 6 is a six lane freeway. The 2015 Transportation Concept for Segment 7 is to improve to a six lane freeway the interim north/south four lane arterial that connects the east end of Otay Mesa Road to the Otay Mesa International Border Crossing. An Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the construction of the six lane freeway in Segments 3,

4, 5 and 6 is currently being developed under a consultant contract administered by the City of San Diego.

The 2015 Transportation Concept for SR-905 is consistent with the October, 1991 Caltrans Project Study Report (PSR) which proposes a six lane freeway with a wide median from one half mile east of I-805 to the Otay Mesa Border Crossing. An additional pre-PSR was completed in July, 1994 which proposes to widen and upgrade Otay Mesa Road, an existing city street, from a four lane principal arterial to an interim six lane facility between the existing eastern terminus of the freeway portion of SR-905 and the Otay Mesa Port of Entry (POE). Additional improvements to the I-805/SR-905 ramps should also be implemented to accommodate the expected increase in commercial traffic in the SR-905 and I-805 corridors. A PSR/Project Report (PR) was approved in July, 1993 for a state of the art Class A Commercial Vehicle Enforcement Facility at the Otay Mesa POE, which will be constructed adjacent to the proposed commercial POE.

In order to further document the increase in transborder commercial vehicle traffic resulting from increased international trade, Caltrans conducted a Border Crossing and Customhouse Broker Survey in March, 1993. The survey results included the annual number of truck trips and commodity tonnage that pass through California Ports-of-Entry (POEs). The survey also determined the number and percentage of truck trips and commodity tonnage that remain in California or leave the state, as well as the origins and destinations of the truck trips and commodity tonnage by state or by California county. Further information regarding this goods movement survey can be found in a Caltrans report entitled Transportation Issues Along the California/Mexico Border dated September, 1993.

Numerous planning studies are underway that could affect the SR-905 corridor. A portion of the International Border Transportation Case Study will examine cross-border planning issues and provide a preliminary feasibility analysis for extending a future U.S. toll corridor to join with a proposed Mexico toll corridor approximately three miles east of the existing Otay Mesa POE. Legislation has been proposed to designate this extension as State Route 11. As part of the National Highway System High Priority Studies, the I-15 Corridor Study will focus on economic development, air quality, and truck/rail goods movement in the I-15 corridor from the International Border to Las Vegas, Nevada. On a broader scale, the North American West Coast Trilateral Trade Corridor Study will identify existing and projected major trade corridors as well as physical and institutional limitations to free trade. Additionally, the Binational Transportation Planning Process Study will promote facilitation and coordination of cross-border transportation planning activities. Several other funded and unfunded border related projects and studies are in varying stages of development and are discussed in more detail in the aforementioned Caltrans report.

Another component of the 2015 Transportation Concept includes expansion of the existing transit service in the SR-905 corridor and the implementation of nearby light rail service. In March 1991, SANDAG completed a study that concluded that express buses or guideway transit within the SR-905 corridor is feasible. The Metropolitan Transit Development Board (MTDB) Regional Rail Transit Plan designates transit within

the SR-905 corridor as a future rail extension under study. To that end, MTDB is developing a South Bay Public Transportation Plan that will examine transit options for the corridor. This plan will help determine alignment options in the SR-905 corridor for the Otay Mesa Light Rail Transit (LRT) line. The plan will also analyze alternative alignments for the Otay Ranch LRT.

An additional component of the 2015 Transportation Concept includes improvements to the arterial street system in the SR-905 corridor. Arterial street improvements such as additional lanes, preferential signal treatment, limitation and separation of left turn movements, limited driveways, and other access controls should also be provided where necessary to help achieve the 2015 Transportation Concept LOS. Therefore, in accordance with the City of San Diego's Transportation Phasing Study-Otay Mesa Communities, expansion of the existing street network is necessary to increase corridor mobility and reduce peak hour demands on SR-905.

The aviation component for SR-905 includes Brown Field, a general aviation facility providing private aircraft services. Brown Field is located north of the SR-905 corridor and is the fourth busiest general aviation airport in San Diego County. The aviation component formerly included the feasibility of a "TwinPorts" airport facility that would have combined the air operations of the existing Abelardo L. Rodriguez International Airport in Tijuana with a new San Diego regional airport. The TwinPorts would have straddled the United States/Mexico Border and would have been a major land use in the Otay Mesa area. Due to recent land use changes by the City of San Diego, as well as some recent political considerations, it is no longer appropriate to consider the TwinPorts concept as a realistic aviation alternative.

Also included in the 2015 Transportation Concept is the construction of SR-125 from SR-905 to SR-54. SR-125 is a north/south facility that will complete the South Bay portion of the Regional Highway System. In January of 1991, California Transportation Ventures (CTV) signed a contract with the State of California to develop a nine mile segment (P.M. SD 0.0 - P.M. 9.6) of SR-125 as one of four toll road demonstration projects statewide. The toll road is scheduled to open for traffic in late 1998.

Future studies should consider the feasibility of developing SR-905 as a toll facility from I-805 to future SR-125. The existing SR-125 toll road agreement with CTV may need to be amended or expanded to allow SR-905 to be constructed as a toll facility. In addition, new legislation may be needed to make appropriate changes to the Streets and Highways Code.

The 2015 Transportation Concept also includes the provision of additional TCM, TDM and TSM improvements where appropriate.

2015 TRANSPORTATION CONCEPT FACILITY IMPROVEMENTS

Table S-3 shows mainlane facility improvements to SR-905 that are part of the 2015 Transportation Concept. The peak hour Volume to Capacity (V/C) ratio and peak hour Operating LOS listed assume completion of the proposed mainlane facility improvement. These improvements are also shown on the District 11 Transportation Concept Report Map on page 11.

TABLE S-3
2015 TRANSPORTATION CONCEPT FACILITY IMPROVEMENTS

Segment/ County Post-Mile	Location	Improvement Description	V/C Ratio	Operating LOS*	Concept LOS**
3 SD 5.2 - 7.6	I-805 to Heritage Road	Construct 6F	.81	D	E
4 SD 7.6 - 8.7	Heritage Road to Britannia Boulevard	Construct 6F	.87	D	E
5 SD 8.7 - 9.7	Britannia Boulevard to La Media Road	Construct 6F	.91	D	E
6 SD 9.7 -10.6	La Media Road to Future SR-125	Construct 6F	.85	D	E
7 SD 10.6 -12.0	Future SR-125 to International Boundary	Upgrade from 4C to 6F	.69	C	E

4C = Four lane conventional highway

6F = Six lane freeway

CMP = Congestion Management Plan

LOS = Level of Service

SANDAG = San Diego Association of Governments

V/C = Volume to Capacity

* Peak Hour Operating LOS includes the provision of State highway, arterial, and transit improvements.

** Concept LOS is based on the SANDAG CMP minimum LOS standard.

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INTRODUCTION

Statement of Planning Intent

The system planning process consists of three products: the District System Management Plan (DSMP), the Transportation Development Plan (TDP), and the Transportation Concept Report (TCR).

The DSMP is a strategic and policy planning document that describes how the District envisions the transportation system will be maintained, managed and developed over the next 20 years and beyond. The DSMP is developed in partnership with regional and local transportation planning agencies. It describes the overall goals and policies which relate to District transportation issues. The goals and policies consider the entire transportation system, regardless of jurisdiction, and address all modes which move people, goods and services. The DSMP summarizes 20 year planning concepts and proposed transportation improvements on a system-wide level, and influences the development of future transportation concepts and development plans.

The TDP identifies transportation corridor improvements for the five year period following the seven year State Transportation Improvement Program (STIP). The TDP analyzes proposed system improvements in terms of timing, local and regional priorities, interregional travel, system continuity, and two funding scenarios. Together, the STIP and the TDP constitute the first 12 years of the 20 year planning period and act as a benchmark for measuring progress toward attainment of the 20 year concept.

The TCR is a planning document which describes the Department's basic approach to the development of a given corridor. Considering reasonable financial constraints and projected travel demand, the TCR establishes a 20 year transportation planning concept and identifies modal transportation options needed to achieve the concept. The concept considers operating levels of service (LOS), modal facility types and vehicle occupancy rates. The TCR also considers potential long term needs for the corridor beyond the 20 year planning period. The long term needs focus on corridor preservation, the Ultimate Transportation Corridor (UTC) and new technologies. Minimum right of way widths are also established in the UTC for all conventional highway portions of the transportation system.

The TCR is a preliminary planning phase that leads to subsequent programming and the project development process. As such, the specific proposed nature of improvements (i.e., number of lanes, access control, etc.) may change in later project development stages, with final determinations made during the Project Study Report, Project Report and design phases.

Each TCR must be viewed as an integral part of a planned system. The TCR is based on the completion of the 20 year system. The system has been developed to meet anticipated travel demand generated from regional growth forecasts. Removal of any portion of a route from the system will adversely affect travel on parallel or intersecting routes.

The TCR is prepared by Caltrans District staff in cooperation with local and regional agencies. The TCR will be updated as necessary as conditions change or new information is obtained.

ROUTE DESCRIPTION

State Route 905 (SR-905) is a partially constructed 12 mile route extending from the International Boundary near Border Field Park, 2.8 miles west of Interstate 5 (I-5), to the International Border Crossing on Otay Mesa. It is the only east-west route serving intraregional traffic between the Otay Mesa/International Border area and the cities of Chula Vista, National City and Imperial Beach.

SR-905 was adopted as a freeway, originally as SR-75, by the California Transportation Commission (CTC) in 1965. A freeway agreement was executed with the County of San Diego in 1969. Additionally, four freeway agreements were signed with the City of San Diego between 1969 and 1972 extending SR-75 to cover most of the route. In 1973 SR-75 was redesignated as SR-117 and in 1973 the freeway opened between I-5 and I-805. In 1987 the route designation changed from SR-117 to SR-905, which is a non-chargeable Interstate Route designation. To maintain this designation, the remainder of the route needs to be built to Interstate Standards by 1996.

Two existing State highways intersect with SR-905. They are I-5 and I-805. In addition, proposed SR-125 will also intersect SR-905. The nearest parallel freeway to SR-905 is SR-54, located approximately six miles to the north.

Purpose of Route

SR-905 is part of the regional outer loop system of State highways. It is a principal east-west route which serves intraregional, interregional, commercial and commuter traffic between the rapidly developing Otay Mesa area and destinations to the north via I-5 and I-805. SR-905 also carries substantial cross-border traffic by providing access to and from the Otay Mesa International Border crossing. Future improvements to the SR-905 corridor are needed due to growth in United States/Mexico trade as a result of the North American Free Trade Agreement (NAFTA). Commercial carrier activity between the United States and Mexico is also expected to increase in the future. Therefore, improving access to and from the Otay Mesa border crossing, as well as developing infrastructure improvements at the border, will be necessary.

Existing Facility Classifications

The functional classification for SR-905 is shown in Table 1 for each segment of the route. SR-905 is functionally classified as an Other Freeway or Expressway from I-5 (P.M. SD 3.2) to Otay Mesa Road (P.M. SD 6.5). From Otay Mesa Road to the International Boundary (P.M. SD 12.0) SR-905 is functionally classified as an Other Principal Arterial. SR-905 will also be included in the proposed National Highway System (NHS) from I-5 (P.M. SD 3.2) to the International Border (P.M. SD 12.0). Additionally, from .5 miles east of Cactus Road (P.M. SD 8.9) to the International Boundary (P.M. SD 12.0), SR-905 is part of the Interregional Road System (IRRS).

From I-5 (P.M. SD 3.2) to I-805 (P.M. SD 5.2) , SR-905 is designated as part of the national network for Surface Transportation Assistance Act (STAA) Trucks. From I-805 (P.M. SD 5.2) to Otay Mesa Road (P.M. SD 6.5), SR-905 is part of the State Highway Terminal Access Route System. It is expected that these designations will be extended to the other segments of SR-905 upon their completion.

SR-905 is not on the California State Scenic Highway System.

There is a bicycle route along Otay Mesa Road, serving bicycle trips in the SR-905 corridor.

For maintenance programming purposes, the State highway system has been classified as Class 1, 2, and 3 highways based on the Maintenance Service Level (MSL) descriptive definitions. The MSL 1 designation contains route segments in urban areas functionally classified as Interstate, Other Freeway or Expressway, or Other Principal Arterial. In rural areas, the MSL 1 designation contains route segments functionally classified as Interstate or Other Principal Arterial.

MSL 2 contains route segments classified as an Other Freeway/Expressway or Other Principal Arterial not in MSL 1, route segments functionally classified as minor arterials not in MSL 3, and route segments with a 2015 Transportation Concept of Maintain and Improve.

MSL 3 indicates a route or route segment with the lowest maintenance priority. Typically, MSL 3 contains route segments with a 2015 Transportation Concept of Maintain Only. These are route segments functionally classified as major or minor collectors and local roads, route segments with relatively low traffic volumes and route segments being considered for relinquishment, recession, or where a new alignment will replace the existing facility. MSL 3 roads are not candidates for pavement rehabilitation but are to be maintained with maintenance funds. There is an exception if a road cannot be maintained without rehabilitation. Route segments where the District does not anticipate spending money and route segments where route continuity is necessary are also assigned an MSL 3 designation

SR-905 is classified as an MSL 2 route for its entire length.

Route Segments

SR-905 is examined in seven segments for traffic analysis and other purposes. Table 1 lists the segments and includes some of the information used as criteria for segment divisions. A map is attached at the end of this report which indicates the location and post miles of the segments used in this analysis.

**TABLE 1
ROUTE SEGMENTATION**

Segment/ County Post-Mile	Location	No. Lanes/ Facility Type	Urban/ Rural	Functional Classification
1 SD 0.0 - 2.8	International Boundary to west of I-5	Unconstructed	U	
2 SD 2.8 - 5.2	West of I-5 to I-805	4F	U	Other Freeway or Expressway
3 SD 5.2 - 7.6	I-805 to Heritage Road	4F*	U	Other Freeway or Expressway**
4 SD 7.6 - 8.7	Heritage Road to Britannia Boulevard	Unconstructed	R	Other Principal Arterial
5 SD 8.7 - 9.7	Britannia Boulevard to La Media Road	Unconstructed	R	Other Principal Arterial
6 SD 9.7 -10.6	La Media Road to Future SR-125	Unconstructed	R	Other Principal Arterial
7 SD 10.6 -12.0	Future SR-125 to International Boundary	4C	R	Other Principal Arterial

4C = Four lane conventional highway

4F = Four lane freeway

R = Rural

U = Urban

* From east of I-805 (P.M. SD 6.0) to Otay Mesa Road (P.M. SD 6.5) is a temporary connection and the remainder of the segment from Otay Mesa Road (P.M. SD 6.5) to Heritage Road (P.M. SD 7.6) is unconstructed.

**The portion of the segment from P.M. SD 6.5 to P.M. SD 7.6 is an Other Principal Arterial.

Existing Facility

Segment 1, from the International Boundary near Border Field State Park (P.M. SD 0.0) to west of I-5 (P.M. SD 2.8) is part of legislative route SR-905. It is unadopted and unconstructed and is recommended for further study. Segment 2, from west of I-5 (P.M. SD 2.8) to I-805 (P.M. SD 5.2) is a four lane freeway plus auxiliary lanes with interchanges at I-5 and I-805. No ramp meters are in use on this segment. Segment 3 is an adopted existing four lane access controlled freeway with auxiliary lanes from I-805 (P.M. SD 5.2) to the junction with Otay Mesa Road (P.M. SD 6.5). Easterly of this junction the freeway is unconstructed, and traffic continues on Otay Mesa Road, an east-west traversable city street. Otay Mesa Road is a four lane arterial located north of the SR-905 adopted alignment. Segments 4, 5 and 6 are currently unconstructed, and traffic continues to use Otay Mesa Road. Segment 7 is an interim four lane segment of SR-905 connecting the east end of Otay Mesa to the International Border Crossing. This segment of conventional highway was originally adopted as SR-125 in 1983. It was constructed under a Memorandum of Agreement (MOA) between Caltrans, the County, and the City of San Diego and adopted into the State highway system upon completion in 1985. This segment of highway, now designated as SR-905, was

maintained by the City of San Diego until maintenance responsibility was transferred to Caltrans on August 1, 1990. Ownership of the facility was automatically vested in the State, per the MOA.

There are no existing Park and Ride lots found along the SR-905 corridor and no transit service available east of the interchange at I-805 and SR-905. Trolley service is provided along the I-5 corridor, with the nearest station to SR-905 located at Beyer Boulevard and Iris Street.

A physical description of the existing facility in a segment-specific format is shown in Table 2.

**TABLE 2
EXISTING FACILITY**

Segment/ County Post-Mile	No. Lanes/ Facility Width	Outside Shoulder Width	Inside Shoulder Width	Maximum R/W Width	Median Width	Grade Line
1 SD 0.0 - 2.8	Unadopted/Unconstructed/Needs Further Study					
2 SD 2.8 - 5.2	4 @ 12	5 - 10	4 - 10	110	4 - 99	Flat
3 SD 5.2 - 7.6*	4 @ 12	4 - 10	4 - 10	110	4 - 99	Flat
4 SD 7.6 - 8.7	Unconstructed					
5 SD 8.7 - 9.7	Unconstructed					
6 SD 9.7 - 10.6	Unconstructed					
7 SD 10.6 - 12.0	4 @ 12	7 - 8	8	80	14 - 99	Flat

R/W = Right of Way

* From P.M. SD 6.0 to P.M. SD 6.5 is a temporary connection and the remainder of the segment from P.M. SD 6.5 to P.M. SD 7.6 is unconstructed.

Note: Widths are in feet.

The following section describes the location and number of auxiliary lanes by direction for SR-905.

**TABLE 3
EXISTING AUXILIARY LANES**

County Post-Mile	Location	Direction	Number
SD 2.8 - 3.2	I-5 to Oro Vista Road	Westbound	1
SD 3.2 - 3.8	Beyer Boulevard to I-5	Westbound	1
SD 3.8 - 4.4	Picador Boulevard to Beyer Boulevard	Westbound	1
SD 4.4 - 5.2	I-805 to Picador Boulevard	Westbound	1
SD 3.2 - 3.8	I-5 to Beyer Boulevard	Eastbound	1
SD 3.8 - 4.4	Beyer Boulevard to Smythe Avenue	Eastbound	1
SD 4.4 - 5.2	Smythe Avenue to I-805	Eastbound	1

Average accident data for the three year period from January 1, 1988 to January 1, 1991 was analyzed for SR-905. Criteria used for determining an accident concern is based on whether actual total accident rates exceeded expected total accident rates by one and one-half times. There are no accident concerns for any segment of SR-905.

ROUTE ANALYSIS

This section further discusses existing conditions on SR-905 and introduces future Post 1994-STIP/2015 No Build conditions. This section also includes a land use/corridor growth and demographic analysis for existing and future conditions in the SR-905 corridor.

Existing and Future (2015 No Build) Operating Conditions

Table 4 shows existing and future operating conditions for SR-905. Existing conditions reflect 1992 data. The future conditions are based on Caltrans projections for 2005 and the San Diego Association of Governments (SANDAG) Series 8 Regional Population and Employment forecasts for 2015. Future 2015 No Build conditions assume the completion of only those projects in the local transportation sales tax (TransNet) program and those in the 1994 STIP.

TABLE 4
EXISTING AND FUTURE (2015 NO BUILD) OPERATING CONDITIONS

Segment/ County Post-Mile	Year	No. Lanes/ Facility Type	ADT	PHV	V/C Ratio	Operating LOS
1 SD 0.0 - 2.8	1992	Unconstructed				
	2005	Unconstructed				
	2015	Unconstructed				
2 SD 2.8 - 5.2	1992	4F	35,000	1,500	.39	B
	2000	4F	49,000	2,800	.63	C
	2015	4F	63,000	3,600	.81	D
3 SD 5.2 - 7.6	1992	4F*	33,000	1,700	.47	B
	2005	4F*	50,000	2,700	.70	D
	2015	4F*	68,000	3,700	.95	E
4 SD 7.6 - 8.7	1992	Unconstructed				
	2005	Unconstructed				
	2015	Unconstructed				
5 SD 8.7 - 9.7	1992	Unconstructed				
	2005	Unconstructed				
	2015	Unconstructed				
6 SD 9.7 - 10.6	1992	Unconstructed				
	2005	Unconstructed				
	2015	Unconstructed				
7 SD 10.6- 12.0	1992	4C	22,000	1,100	.50	B
	2005	4C	42,000	2,500	1.11	F ₀
	2015	4C	63,000	3,800	1.66	F ₃

4C = Four lane conventional highway
4F = Four lane freeway
ADT = Average Daily Traffic
V/C = Demand to Capacity Ratio
LOS = Level of Service
PHV = Peak Hour Volume (one way)

* From east of I-805 (P.M. SD 6.0) to Otay Mesa Road (P.M. SD 6.5) is a temporary connection and the remainder of the segment from P.M. SD 6.5 to P.M. SD 7.6 is unconstructed.

Corridor Growth and Demographics

The SANDAG Series 8 Regional Population and Employment Forecast anticipates an increase in population in the San Diego Region from 2.5 million people in 1990 to 3.63 million people in 2015. This represents a 45 percent increase in population. More specifically, the City of San Diego anticipates an increase in population from 1.1 million in 1990 to 1.5 million in 2015, a 36 percent increase in population. This large increase in population will create a demand for additional housing, employment, and public facilities. Complementary land use and transportation improvements will be required.

SR-905 is a partially constructed 12 mile east/west facility extending from the International Border near Border Field Park to the Otay Mesa International Border Crossing on Otay Mesa. The route serves a rapidly growing area of southern San Diego County and Mexico.

The Otay Mesa communities and Tijuana have all experienced rapid growth since 1980. This growth has been stimulated by the change of land use from thousands of acres of farmland to the current land use designation of industrial/commercial and residential. Otay Mesa has been designated by the City of San Diego to be a primary industrial and commercial center for the County of San Diego.

Tijuana has had a growth rate twice that of the San Diego region, with a current population of over one million. The City of Tijuana population is projected to increase to 2.0 million people by the year 2015. Population growth in the City of Tijuana does have an effect on the transportation needs within the South Bay and San Diego region. Thousands of residents of Tijuana travel to the United States to work or shop, resulting in extensive cross-border movement of people to and from the San Diego region every day. As much as two-thirds of the traffic now using SR-905 is entering the United States at the Otay Mesa International Border Crossing. Rapid development in the area is also partly due to the establishment of a five site Foreign Trade Zone in Otay Mesa and the proximity to the Maquiladora manufacturing/assembly industry just across the border in Mexico. In a typical twin plant (Maquiladora) arrangement, a company's warehouse/distribution center is located in the Foreign Trade Zone, where goods are not subject to United States Customs duties or excise taxes; its products are assembled and packaged in a Tijuana Maquiladora plant, which benefits from the available labor resource in Mexico.

Currently, the Otay Mesa area has a daytime population of 3,600 persons, and is the location of 2,700 jobs. According to the SANDAG Series 8 Regional Growth Forecast, the Otay Mesa population could expand by 20 times, and employment by 10 times the current level by 2015. The City of San Diego currently has final approved development plans for 1,900 acres on Otay Mesa, and tentative maps on file for another 1,000 acres. Additionally, the County of San Diego has approved 3,300 acres for development in the East Otay Mesa area.

Table 5 lists current and future housing, employment and population data for a four mile wide corridor the length of SR-905.

**TABLE 5
HOUSING, EMPLOYMENT, AND POPULATION GROWTH**

County Post-Mile	Location	Year	Housing	Percentage Change From Base Year	Employment	Percentage Change From Base Year	Population	Percentage Change From Base Year
SD 2.8 - 5.2	I-5 to I-805	1990	17,500	-	7,400	-	64,600	-
		2000	18,400	5.1	7,600	2.7	69,900	8.2
		2010	19,200	9.7	8,800	18.9	69,000	6.8
		2015	20,000	14.3	9,100	23.0	70,700	9.4
SD 5.2 - 8.7	I-805 to Britannia Boulevard	1990	10	-	700	-	40	-
		2000	5,100	50,900.0	700	0.0	18,400	45,900.0
		2010	16,500	164,900.0	3,100	342.9	56,500	141,200.0
		2015	20,500	204,900.0	6,000	757.1	69,400	173,400.0
SD 8.7- 12.0	Britannia to Int'l Boundary	1990	1,100	-	4,000	-	4,100	-
		2000	1,300	18.2	7,600	90.0	4,500	9.8
		2010	1,600	45.5	17,600	340.0	5,400	31.7
		2015	1,700	54.5	20,800	420.0	5,900	43.9
TOTALS:		1990	18,610	-	12,100	-	68,740	-
		2000	24,800	33.3	15,900	31.4	92,800	35.0
		2010	37,300	100.4	29,500	143.8	130,900	90.4
		2015	42,200	126.8	35,900	196.7	146,000	112.4

Source: San Diego Association of Governments (SANDAG)

Additional traffic generators in the SR-905 corridor will significantly increase congestion on area surface streets and SR-905. Proposed major developments that will generate at least 7,000 trips and significantly impact traffic on SR-905 are shown in Table 6.

**TABLE 6
TRIP INDUCING MAJOR DEVELOPMENT PROJECTS**

Segment	Proposed Development	Dwelling Units	Acreage	Trips Generated Daily
2	California Terraces	4,000		48,000
2	Hidden Trail	838		7,000
2	Hector Rezone		22	14,000
3	International Business Center		88	8,000
3	Otay Corporate Center		112	13,000
3	Pacific Business Park		81	16,000
4	Brown Field Business Park		155	14,000
4	Otay Mesa Business Park		73	14,000
4	Otay Mesa III LTQ		76	15,000
4	Otay Ranch Business Park		390	36,000
4	Otay Mesa Individual Group		81	13,000
5	The Gateway at Otay International Center		284	16,000
5	San Diego Business Park		80	7,000
Total:				221,000

Source: Caltrans District 11 Planning Studies Branch

TRANSPORTATION CONCEPT (2015)

The 2015 Transportation Concept is determined by a detailed analysis of each route. Factors that are influential in the process include land use, terrain, travel characteristics, relative importance of the route, relationship to other routes, urban or rural areas, functional classification, average daily traffic (ADT), safety, and cost of possible improvements. The components of the 2015 Transportation Concept include State highway, arterial street, transit, and rail improvements. The State highway component of the 2015 Transportation Concept is composed of two parts; (1) a minimum tolerable LOS for the peak hours, and (2) a description of the physical facility necessary to accommodate that LOS. Additional components of the 2015 Transportation Concept include future implementation of intermodal, Transportation Systems Management (TSM), Transportation Demand Management (TDM), Transportation Control Measures (TCM) and Air Quality improvement tactics. These items are discussed in subsequent sections of this report. The 2015 Transportation Concepts have been approved by District management.

Although Segments 4, 5, 6 and 7 are currently in the rural area, it is expected that they will become urban in the future. Accordingly, the 2015 Transportation Concept LOS is based on the SANDAG Congestion Management Program (CMP). The CMP will be updated annually to address congestion problems in a coordinated and cooperative manner with various County entities. The elements of the CMP include a TDM and trip reduction element, a transit standards element, a land use impact analysis program, a seven year Capital Improvements Program (CIP), and an element defining LOS standards for the highway portion of the regional transportation system. For all segments of SR-905, the 2015 Transportation Concept LOS of "E" is based on the CMP minimum LOS standard. The 2015 Operating LOS is equal to or better than the minimum LOS standard except for Segment 2. In order to maintain that relationship, additional regional TCM, TDM, and TSM improvements will be needed.

Table 7 shows the specific 2015 Transportation Concept facility type and LOS for each SR-905 segment. The 2015 Operating LOS shown below reflects both mainlane and auxiliary lanes if applicable. It is also based on Caltrans' traffic projections and the SANDAG Series 8 Regional Traffic Forecast and assumes completion of the future regional transportation system and all proposed State highway, arterial street, rail, and transit improvements.

**TABLE 7
2015 TRANSPORTATION CONCEPT**

Segment/ County Post-Mile	Location	No. Lanes/ Facility Type	ADT	V/C Ratio	Operating LOS*	Concept LOS**	Rural/ Urban
1 SD 0.0 - 2.8	International Boundary to west of I-5	Unadopted/Unconstructed/Needs Further Study					
2 SD 2.8 - 5.2	West of I-5 to I-805	4F+Aux	80,000	1.03	F0	E	U
3 SD 5.2 - 7.6	I-805 to Heritage Road	6F	87,000	.81	D	E	U
4 SD 7.6 - 8.7	Heritage Road to Britannia Boulevard	6F	94,000	.87	D	E	R
5 SD 8.7 - 9.7	Britannia Boulevard to La Media Road	6F	95,000	.91	D	E	R
6 SD 9.7 -10.6	La Media Road to Future SR-125	6F	88,000	.85	D	E	R
7 SD 10.6 -12.0	Future SR-125 to International Boundary	6F	66,000	.69	C	E	R

4F = Four lane freeway

6F = Six lane freeway

ADT = Average Daily Traffic

AUX = Includes auxiliary lanes

CMP = Congestion Management Plan

LOS = Level of Service

SANDAG = San Diego Association of Governments

U = Urban

R = Rural

V/C = Volume to Capacity

* Peak Hour Operating LOS includes the provision of State highway, arterial, and transit improvements.

** Concept LOS is based on the SANDAG CMP minimum LOS standards.

The District 11 Transportation Concept Map for SR-905 on the following page shows the improvements included as part of the 2015 Transportation Concept.

2015 TRANSPORTATION CONCEPT



2015 TRANSPORTATION CONCEPT FACILITY IMPROVEMENTS

Segment/ County Post Mile	Location	Improvement Description	Peak Hour D/C Ratio	Peak Hour Operating LOS	Concept LOS
3 SD 5.2 - 7.6	I-805 to Heritage Road	Construct 6F	.81	D	E
4 SD 7.6 - 8.7	Heritage Road to Britannia Boulevard	Construct 6F	.87	D	E
5 SD 8.7 - 9.7	Britannia Boulevard to La Media Road	Construct 6F	.91	D	E
6 SD 9.7 - 10.6	La Media Road to Future SR-125	Construct 6F	.85	D	E
7 SD 10.6 - 12.0	Future SR-125 to International Boundary	Upgrade from 4C to 6F	.69	C	E

CONCEPT RATIONALE

An intermodal approach is necessary in order to provide for the projected increase in person trips in the SR-905 corridor. The 2015 Transportation Concept is described below on a component basis.

The highway component of the 2015 Transportation Concept for SR-905 is described by segments. The 2015 Transportation Concept for Segment 1 has not been determined and is recommended for further study. The 2015 Transportation Concept for Segment 2 is a four lane freeway. This segment has already been constructed as a four lane access controlled freeway with auxiliary lanes. The 2015 Transportation Concept for Segment 3 is a six lane freeway. A portion of this segment has already been constructed as a four lane freeway with auxiliary lanes. The 2015 Transportation Concept for Segments 4, 5 and 6 is a six lane freeway. The 2015 Transportation Concept for Segment 7 is to improve to a four lane freeway the interim north/south four lane arterial that connects the east end of Otay Mesa Road to the Otay Mesa Border Crossing. An Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the construction of the six lane freeway in Segments 3, 4, 5 and 6 is currently being developed under a consultant contract administered by the City of San Diego.

The 2015 Transportation Concept for Segments 3 through 5 is consistent with the October, 1991 Caltrans Project Study Report (PSR) which also proposes a six lane freeway with a wide median for future expansion. An additional pre-PSR was completed in July, 1994 which proposes to widen and upgrade Otay Mesa Road, an existing city street, from a four lane principal arterial to an interim six lane facility between the existing eastern terminus of the freeway portion of SR-905 and the Otay Mesa POE. At this time, no completion date has been established for this PSR. Additional improvements to the I-805/SR-905 ramps will also need to be implemented to help accommodate expected future increases in commercial traffic.

A Caltrans PSR/Project Report (PR) was approved in July, 1993 for the construction of a Class A Commercial Vehicle Enforcement Facility adjacent to the Otay Mesa POE. This facility will provide for enforcement of safety, insurance and commercial licensing requirements and will include advanced weigh in motion technology.

The Virginia Street southbound commercial vehicle inspection facility in San Ysidro is scheduled to close this year. All commercial truck traffic will be processed through the Otay Mesa POE. To accommodate this increased truck traffic, a new commercial POE is currently under construction. In the future, all trucks will enter Tijuana, Mexico at the Otay Mesa commercial crossing. A specific improved southbound truck route in the Otay Mesa area will be developed to alleviate the anticipated queuing of truck traffic in this vicinity.

In order to further document the increase in transborder commercial vehicle traffic resulting from increased international trade, Caltrans conducted a Border Crossing and Customhouse Broker Survey in March, 1993. The survey results included the annual number of truck trips and commodity tonnage that pass through California Ports-of-

Entry (POEs). The survey also determined the number and percentage of truck trips and commodity tonnage that remain in California or leave the state, as well as the origins and destinations of the truck trips and commodity tonnage by state or by California county. Further information regarding this goods movement survey can be found in a Caltrans report entitled Transportation Issues Along the California/Mexico Border dated September, 1993.

Numerous planning studies are underway that could affect the SR-905 corridor. A portion of the International Border Transportation Case Study will examine cross-border planning issues and provide a preliminary feasibility analysis for extending a future U.S. toll corridor to join with a proposed Mexico toll corridor approximately three miles east of the existing Otay Mesa POE. Legislation has been proposed to designate this extension as State Route 11. As part of the National Highway System High Priority Studies, the I-15 Corridor Study will focus on economic development, air quality, and truck/rail goods movement in the I-15 corridor from the International Border to Las Vegas, Nevada. On a broader scale, the North American West Coast Trinational Trade Corridor Study will identify existing and projected major trade corridors as well as physical and institutional limitations to free trade. Additionally, the Binational Transportation Planning Process Study will promote facilitation and coordination of cross-border transportation planning activities. Several other funded and unfunded border related projects and studies are in varying stages of development and are discussed in more detail in the aforementioned Caltrans report.

For all segments, operational and safety improvements may be implemented as necessary. Because of the pedestrian problems on existing freeways in the South Bay area, specific safety measures such as fencing, lighting, signing, or other strategies should be developed.

Another component of the 2015 Transportation Concept includes the expansion of the existing transit service in the SR-905 corridor and the implementation of light rail service. In March 1991, SANDAG completed a study that concluded that express buses or guideway transit within the SR-905 corridor is feasible. The Metropolitan Transit Development Board (MTDB) Regional Rail Transit Plan includes the SR-905 corridor, designating transit within that corridor as a future rail extension under study. To that end MTDB is developing a South Bay Public Transportation Plan that will examine transit options in the corridor. This plan will help determine alignment options in the SR-905 corridor for the proposed Otay Mesa Light Rail Transit (LRT) line. This line would connect the existing South LRT line with the Otay Mesa POE and provide service to commercial and industrial activities in Otay Mesa. The MTDB plan will also analyze alignment options for the Otay Ranch LRT line which would connect the eastern South Bay region to the Otay Mesa POE.

An additional component of the 2015 Transportation Concept includes improvements to the arterial street system in the SR-905 corridor. Arterial street improvements such as additional lanes, preferential signal treatment, limitation and separation of left turn movements, limited driveways, and other access controls should also be provided where necessary to help achieve the 2015 Transportation Concept LOS. Therefore, in accordance with the City of San Diego's Transportation Phasing Study-Otay Mesa

Communities, expansion of the existing street network is necessary to increase corridor mobility and reduce peak hour demands on SR-905.

Also included in the Transportation Concept is the construction of SR-125 from SR-905 to SR-54. SR-125 is a north/south facility that will complete the South Bay portion of the Regional Highway System. In January of 1991, California Transportation Ventures (CTV) signed a contract with the State of California to develop a nine mile segment (P.M. SD 0.0 - P.M. SD 9.6) of SR-125 as one of the four toll road demonstration projects Statewide. The toll road is currently scheduled to be open to traffic in late 1998.

Future studies should consider the feasibility of developing SR-905 as a toll facility from I-805 to future SR-125. The existing SR-125 toll road agreement with CTV may need to be amended or expanded to allow SR-905 to be constructed as a toll facility. In addition, new legislation may be needed to make appropriate changes to the Streets and Highways Code.

The aviation component for SR-905 includes Brown Field, a commercial airport providing private aircraft services. It is located to the north of the SR-905 corridor. Brown Field had an annual operations of 195,000 in 1991, the last year for which information is currently available. Brown Field based aircraft number 217 with a current capacity of 329 permanent aircraft parking sites. Forecasted annual operations for 2005 are estimated at 322,000 with the number of based aircraft expected to increase to 474. Brown Field is the third busiest general aviation airport in San Diego County. The aviation component formerly included the feasibility of a "TwinPorts" airport facility that would have combined the air operations of the existing Abelardo L. Rodriguez International Airport in Tijuana with a new San Diego regional airport. The TwinPorts would have straddled the United States/Mexico Border and would have been a major land use in the Otay Mesa area. Due to recent land use changes by the City of San Diego, as well as some recent political considerations, it is no longer appropriate to consider the TwinPorts concept as a realistic aviation alternative.

The 2015 Transportation Concept for the SR-905 corridor includes the provision of additional TCM, TDM and TSM improvements where appropriate.

AIR QUALITY

Based on a recent decision by the State Air Resources Board, the smog classification for San Diego County has been downgraded from "severe" to "serious". The San Diego region's air basin will not be in attainment with State and federal air quality standards until after 1997. The 1988 California Clean Air Act (CCAA) requires the development of a new air quality plan from air districts that did not attain the State's standards in 1987. The San Diego County Air Pollution Control District (APCD) adopted the Regional Air Quality Plan (RAQP) in June 1992. The plan incorporates strategies directed at reducing pollutants and increasing vehicle occupancy in an effort for the region to achieve the State's standards. The RAQP will be implemented by the San Diego Air Pollution Control Board, Caltrans, SANDAG, the transit operators, and the cities of this region.

As part of this RAQP, SANDAG has developed transportation related strategies towards attainment of the plans goals. These strategies are composed of TCM programs planned to achieved the following requirements of the CCAA: a 1.4 minimum average vehicle occupancy during weekday commute hours by 1999, no net increase in emissions relative to population growth after 1997, and contribute to the required reduction in District-wide emissions of five percent per year, averaged every consecutive three-year period. The TCM program is comprised of the following measures: (1.) TDM; (2.) Transportation Capacity Expansion; (3.) Traffic Systems Management; and (4.) Indirect Source Control (ISC). These four measures and their tactics and elements are summarized in outline form on the following page. A more detailed discussion of each measure follows the outline.

TRANSPORTATION CONTROL MEASURES PROGRAM SUMMARY

1.0 TDM MEASURE

1.1 Commute Travel Reduction Program Tactic

- A. Employment Trip Reduction Program and Ordinance
- B. Ridesharing Program Element
- C. Parking Management Program Element
- D. Telecommuting Element
- E. Compressed Work Week Element
- F. Employer Transit Subsidy Element
- G. Flexible Work Hours Element
- H. Staggered Work Hours Element

1.2 College Travel Reduction Program Tactic

- A. Travel Reduction Program and Ordinance Element
- B. Student Transit Pass and Subsidy Element

1.3 Goods Movement/Truck Operation Program Tactic

- A. Goods Movement/Truck Travel Reduction Ordinance Element
- B. Incident Management and Prevention Program Element
- C. Motorist Information System Element

1.4 Non-Commute Travel Reduction Program Tactic

2.0 TRANSPORTATION CAPACITY EXPANSION MEASURE

2.1 Transit Improvements and Expansion Program Tactic

2.2 Vanpool Program Tactic

2.3 HOV Lanes Tactic

2.4 Park and Ride Lot Facilities Tactic

2.5 Bicycle Facilities Tactic

3.0 TRAFFIC SYSTEMS MANAGEMENT MEASURE

3.1 Traffic Flow Improvements Tactic

4.0 ISC MEASURE

1.0 TDM Measure

The TDM measure consists of four principle tactics. The first tactic is (1.1) the Commute Travel Reduction Program. It is composed of eight elements. They are (A.) Employment Trip Reduction Program and Ordinance, (B.) Ridesharing Program, (C.) Parking Management Program, (D.) Telecommuting, (E.) Compressed Work Week, (F.) Employer Transit Subsidy, (G.) Flexible Work Hours, and (H.) Staggered Work Hours elements.

One important element of the Commute Travel Reduction Program Tactic as it relates to congestion relief is the employment trip reduction program and ordinance. The goal of this tactic is to reduce transportation source emissions by increasing the average number of persons per vehicle during peak weekday periods. As part of this, the San Diego City Council adopted the "City of San Diego Transportation Demand Management Ordinance" in September 1989. Implementation for worksites with 50 or more employees began in January 1990.

Another important element is the Ridesharing Program. It provides for the establishment of Transportation Management Associations (TMA's) to encourage employees to commute by alternative modes. Currently, the South Bay TMA provides service for the SR-905 corridor.

The second tactic in the proposed TDM measure is (1.2) the College Travel Reduction Program and Ordinance. It contains two elements. They are (A.) the Travel Reduction Program and Ordinance, and (B.) the Student Transit Pass Subsidy Program. The College Trip Reduction Program and Ordinance will have a similar impact on congestion relief as the Commute Travel Reduction Program.

The third tactic in the proposed TDM measure is (1.3) the Goods Movement/Truck Operation Program. It is comprised of three elements. They are (A.) the Goods Movement/Truck Travel Reduction Ordinance, (B.) the Incident Management and Prevention Program, and (C.) the Motorist Information System.

An important element of the Goods Movement/Truck Operation Program as it relates to congestion relief is the provision of the Motorist Information System. Consistent with the goals of the element, the District 11 Long Range Operations Plan (LROP) proposed a Transportation Management Center (TMC), which is now functioning as a Primitive Traffic Operations Center (PTOC). More recent plans include the development of a 24-hour TMC. It will further aid rapid identification of accidents and other non-recurrent freeway congestion and will issue appropriate information to motorists through the use of changeable message signs, highway advisory radio, and possibly by the use of in-vehicle computers.

The fourth tactic in the proposed TDM measure is (1.4) the Non-Commute Travel Reduction Program. This program will educate drivers in ways to reduce or change the use of their automobiles with a goal of reducing auto emissions. The programs goal is a reduction equivalent to one trip per day per driver.

2.0 Transportation Capacity Expansion Measure

The second major TCM measure is the Transportation Capacity Expansion Measure. The Transportation Capacity Expansion Measure consists of five tactics. They are (2.1) the Transit Improvements and Expansion Program, (2.2) the Vanpool Program, (2.3) HOV Lanes, (2.4) Park and Ride Lot Facilities, and (2.5) Bicycle Facilities.

3.0 Traffic Systems Management Measure

The third major TCM measure is the Traffic Systems Management Measure. The goal of the Traffic Flow Improvement Tactic is to improve the flow of traffic through the coordination of traffic signals and computerized signal controls and to achieve a 10 percent increase in speed on arterial streets by the year 2000. The LROP recommends that a plan be prepared for the systematic review of all signalized intersections on State highways. This plan will include a discussion of signalized local parallel routes.

4.0 ISC Measure

The fourth major TCM measure is the ISC Program. The purpose of the program is to reduce the emissions of motor vehicles associated with land uses identified as indirect sources. The controls will employ TCMs and land use measures to attain the air quality goals.

TRANSPORTATION SYSTEM MANAGEMENT STRATEGIES

TSM is a strategy whose goal is the accommodation of travel demand on existing transportation facilities without increasing congestion. Several TSM improvements have previously been mentioned in the Air Quality section. An additional TSM improvement is the provision of ramp metering systems. The District 11 Ramp Meter Development Plan calls for future ramp meter installation at approximately 170 additional locations throughout San Diego County. Ultimately, SR-905 on-ramps from local streets will be designed to allow for future ramp metering and HOV bypass lanes will be provided on on-ramps where feasible.

Recent studies have identified four potential sites in the SR-905 corridor for the future construction of Park and Ride lots. These include lots located at Palm Avenue/Hollister Street, SR-905/Beyer Boulevard, SR-905/Heritage Road, and the Otay Mesa POE.

OTHER ITEMS

New methodologies can assist in providing better management of the future transportation system. Advanced technology research is one tool that can be used to improve the efficiency of the future transportation system. The "SMART" Corridor concept will employ a number of technological innovations, including in-vehicle navigation systems, computerized roadway sensors, changeable message signs, and television cameras.

CONGESTION PRICING STUDIES

An additional strategy that should be studied in the future is congestion pricing, which is a direct market incentive to ensure that transportation system users pay the "real" costs of the transportation benefits they receive. One purpose of congestion pricing is to reduce travel demand. With the advent of technological advances such as electronic toll collection and traffic management (ETTM) and automatic vehicle identification (AVI) systems, congestion pricing could be developed for a wide variety of transportation facilities.

COMPARISON OF CONCEPTS

The purpose of this section is to compare alternative Transportation Concepts that were considered for this report. The 1993 Transportation Concept for the year 2015 is compared with the 1984 Route Concept Report (RCR) for the year 2005.

In 1984, the Route Concepts were set based on the SANDAG Series 6 Population and Forecasts for the year 2005. In 1989, the SANDAG Series 7 Population and Traffic Forecasts for the year 2010 were developed, and some urban area TCRs were updated in 1990 and 1991 to reflect the Series 7 forecasts. The SR-905 TCR has not been updated since 1984, therefore, Table 8 is comprised of a segment by segment comparison between the 1984 RCR and this current updated TCR.

**TABLE 8
COMPARISON OF 2005 AND 2015 CONCEPTS**

1984 Route Concept for 2005 (Series 6 2005 Traffic)		1994 Transportation Concept for 2015 (Series 8 2015 Traffic)	
Segment/ County Post-Mile	No. of Lanes/ Facility Type/ Concept LOS	Segment/ County Post-Mile	No. of Lanes/ Facility Type/ Concept LOS
1 SD 0.0 - 2.8	To Be Studied	1 SD 0.0 - 2.8	To Be Studied
2 SD 2.8 - 6.1	4F/B	2 SD 2.8 - 5.2	4F+Aux/E
3 SD 6.1 - 10.3	4F/C	3 SD 5.2 - 7.6	6F/E
		4 SD 7.6 - 8.7	6F/E
		5 SD 8.7 - 9.7	6F/E
		6 SD 9.7 - 10.6	6F/E
		6 SD 10.6 - 12.0	6F/E

4F = Four lane freeway
6F = Six lane freeway
AUX = Auxiliary lanes
LOS = Level of Service

Table 9 identifies the SR-905 segments where, with the 2015 Transportation Concept Facility in place, the 2015 peak hour Operating LOS remains at a deficient level. Table

9 also illustrates the LOS's that could be achieved by enlarging the mainlane facility beyond the Transportation Concept Facility size. For those segments the table lists increasingly larger mainlane facility sizes, starting with the number of lanes called for in the Transportation Concept and ending with the number of lanes required to achieve a nondeficient LOS "D". The resultant peak hour Demand to Capacity (D/C) ratio and 2015 peak hour Operating LOS is listed to the right of the "Alternative Number of Lanes" column, with the "2015 Operating LOS" and "Concept LOS" highlighted. Table 9 shows that larger facilities, as wide as 6 lanes in Segment 2, may be necessary to reach a "D" LOS.

**TABLE 9
MAINLANES REQUIRED TO ACHIEVE ALTERNATIVE LEVELS OF SERVICE (2015)**

Segment/ County Post Mile	Alternative No. of Lanes/ Facility Type	Peak Hour D/C	Peak Hour Operating LOS
2 SD 2.8 - 5.2	4F+AUX (TCR Facility)	1.03	F ₀ (2015 Operating LOS)
	6F	.79	D (Concept LOS = E)

4F = Four lane freeway
 6F = Six lane freeway
 AUX = Auxiliary lanes
 D/C = Demand to Capacity
 LOS = Level of Service
 TCR = Transportation Concept Report

EXTERNAL PLANS COORDINATION

The 1993 TCR for SR-905 is mostly consistent with the 1994 RTP. The 1994 RTP calls for a six lane freeway from I-805 to the International Border by the year 2015, while preserving right of way for the addition of two High Occupancy Vehicle (HOV) lanes. The 1994 RTP also considers the portion of SR-905 from I-5 to the International Border as a potential regional corridor for guideway transit service. The 2015 Transportation Concept facility is also consistent with the City of San Diego and the County of San Diego General Plan Circulation Elements.

2015 TRANSPORTATION CONCEPT FACILITY IMPROVEMENTS

Table 10 displays mainlane facility improvements that are part of the 2015 Transportation Concept. The peak hour Volume to Capacity (V/C) ratio and peak hour Operating LOS listed assume completion of the proposed improvements. These improvements are also shown on the District 11 Transportation Concept Report map on page 11.

TABLE 10
2015 TRANSPORTATION CONCEPT FACILITY IMPROVEMENTS

Segment/ County Post-Mile	Location	Improvement Description	V/C Ratio	Operating LOS*	Concept LOS**
3 SD 5.2 - 7.6	I-805 to Heritage Road	Construct 6F	.81	D	E
4 SD 7.6 - 8.7	Heritage Road to Britannia Boulevard	Construct 6F	.87	D	E
5 SD 8.7 - 9.7	Britannia Boulevard to La Media Road	Construct 6F	.91	D	E
6 SD 9.7 -10.6	La Media Road to Future SR-125	Construct 6F	.85	D	E
7 SD 10.6 -12.0	Future SR-125 to International Boundary	Upgrade from 4C to 6F	.69	C	E

4C = Four lane conventional highway

6F = Six lane freeway

CMP = Congestion Management Plan

LOS = Level of Service

SANDAG = San Diego Association of Governments

V/C = Volume to Capacity

* Peak Hour Operating LOS includes the provisions of State highway, arterial, transit, and rail improvements.

** Concept LOS is based on the SANDAG CMP minimum standard.

ULTIMATE TRANSPORTATION CORRIDOR

The UTC describes the long-term (beyond the 20-year planning period) right of way requirements for a particular segment. The long term needs are determined by Advanced Transportation System Development (ATSD) activities which include investigation and analysis of Community Plans, General Plan, Transportation Plans, Land Use Plans, Environmental Documents, and other planning documents. The intent is to take advantage of or develop opportunities for long term right of way acquisition and to work with local and regional agencies to implement corridor preservation measures.

For freeways the UTC shows the number of lanes, facility, or the transit alternative that may be needed to accommodate traffic growth beyond the year 2015. The UTC is shown in Table 11 and is based on Caltrans planning studies and the City of San Diego General Plan Circulation Element. The UTC for Segment 1 is undetermined. The UTC for Segment 2 is to maintain the existing facility and study the addition of LRT and two HOV lanes, based on the results of MTDB's study. The UTC for Segments 3 through 7 calls for six or eight mixed flow lanes, depending on the future LRT alignment, and two HOV lanes. Right of way equivalent to a 10 lane freeway is currently being reserved by the City of San Diego and property owners adjacent to the SR-905 adopted alignment. Due to potential development and revenue raising pressures, it may be difficult to continue preservation of this part of the SR-905 corridor. Some type of right of way protection funding mechanisms should be developed to ensure protection of this corridor for transportation facilities.

**TABLE 11
ULTIMATE TRANSPORTATION CORRIDOR**

Segment/ County Post-Mile	Location	No. Lanes/Facility Type
1 SD 0.0 - 2.8	International Boundary to west of I-5	Unadopted/Needs Further Study
2 SD 2.8 - 5.2	West of I-5 to I-805	4F+AUX (Study LRT+2HOV)
3 SD 5.2 - 7.6	I-805 to Heritage Road	8F+2HOV*
4 SD 7.6 - 8.7	Heritage Road to Britannia Boulevard	8F+2HOV*
5 SD 8.7 - 9.7	Britannia Boulevard to La Media Road	8F+2HOV*
6 SD 9.7 -10.6	La Media Road to Future SR-125	8F+2HOV*
7 SD 10.6 -12.0	Future SR-125 to International Boundary	8F+2HOV*

4F = Four lane freeway

6F = Six lane freeway

8F = Eight lane freeway

2HOV = Two High Occupancy Vehicle lanes

AUX = Auxiliary lanes

LRT = Light Rail Transit

MTDB = Metropolitan Transit Development Board

* If the MTDB South Bay Public Transportation Plan determines that the San Diego Trolley should use the SR-905 right of way then the ultimate facility for Segments 3 - 7 will be 6F+2HOV+LRT. Consideration should also be given to the development of a Major Investment Study (MIS) analysis done by Caltrans in cooperation with MTDB and SANDAG.

LIST OF SYSTEM PLANNING ACRONYMS

ADT	Average Daily Traffic
APCD	Air Pollution Control District
ATSD	Advanced Transportation System Development
CBD	Central Business District
CMP	Congestion Management Program
CTC	California Transportation Commission
DSMP	District System Management Plan
FAI	Federal Aid Interstate
FAS	Federal Aid Secondary
FAP	Federal Aid Primary
FAU	Federal Aid Urban
HOV	High Occupancy Vehicle
IRRS	Interregional Route System
ISTEA	Intermodal Surface Transportation Efficiency Act
LOS	Level of Service
LROP	Long Range Operations Plan
LRT	Light Rail Transit
MSL	Maintenance Service Level
MTDB	Metropolitan Transit Development Board
PHV	Peak Hour Volume
PM	Post Mile
PR	Project Report
PSR	Project Study Report
PTOC	Primitive Traffic Operations Center
RCR	Route Concept Report
RTP	Regional Transportation Plan
R/W	Right of Way
SANDAG	San Diego Association of Governments
STAA	Surface Transportation Assistance Act
STIP	State Transportation Improvement Program
TASAS	Traffic Accident Surveillance and Analysis System
TCM	Transportation Control Measure
TCR	Transportation Concept Report
TDM	Transportation Demand Management
TDP	Transportation Development Plan
TMA	Transportation Management Association
TMC	Transportation Management Center
TSM	Transportation Systems Management
UTC	Ultimate Transportation Corridor
V/C	Volume to Capacity Ratio

SMART CORRIDOR (Author's Definition) Employs technology to improve the operating efficiency of all the roadways within a corridor in order to reduce congestion

LEVEL OF SERVICE (LOS) DEFINITIONS

LOS is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A LOS definition generally describes these conditions in terms of such factors as speed, travel time, freedom to maneuver, comfort and convenience, and safety. LOS definitions can generally be categorized as follows:

<u>LOS</u>	<u>D/C</u>	<u>Congestion/Delay</u>	<u>Traffic Description</u>
<i>(Used for two and four lane freeways and expressways)</i>			
"A"	<.34	None	Free Flow
"B"	0.35-0.52	None	Free to stable flow, light to moderate volumes
"C"	0.53-0.69	None to Minimal	Stable flow, moderate volumes freedom to maneuver noticeably restricted
"D"	0.70-0.92	Minimal to Substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor
<i>(Used for six lane freeways and expressways)</i>			
"A"	<.39	None	Free Flow
"B"	0.40-0.59	None	Free to stable flow, light to moderate volumes
"C"	0.60-0.74	None to Minimal	Stable flow, moderate volumes freedom to maneuver noticeably restricted
"D"	0.75-0.92	Minimal to Substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor
<i>(Used for freeways with eight or more lanes)</i>			
"A"	<.42	None	Free Flow
"B"	0.43-0.62	None	Free to stable flow, light to moderate volumes
"C"	0.63-0.79	None to Minimal	Stable flow, moderate volumes freedom to maneuver noticeably restricted
"D"	0.80-0.92	Minimal to Substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor

(Used for all freeways and expressways)

"F ₀ "	1.01-1.25	Considerable, 0-1 hour delay	Forced flow, heavy congestion, long queues form behind breakdown points, stop and go
"F ₁ "	1.26-1.35	Severe, 1-2 hour delay	Very heavy congestion, very long queues
"F ₂ "	1.36-1.45	Very severe, 2-3 hour delay	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods
"F ₃ "	> 1.46	Extremely severe, 3+ hours of delay	Gridlock

EXISTING ROUTE SEGMENTATION



LEGEND

4F+AUX/B

4 = Number of Lanes

F = Existing Facility Type

AUX = Auxiliary Lane

B = Current Level of Service

S.D.P.M. 0.0

S.D. = San Diego

P.M. = Post Mile

State Route 905

I approve this Transportation Concept Report as a guide for development of SR-905 over the next 20 years.

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